

Idaho Tribal Fish Consumption Survey Update

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EPA Region 10

Understanding Tribal Fish Consumption

General Background

- Tribal Governments in ID have been working w/ EPA and EPA contractors on a 2014-2015 survey on types and amounts of fish consumed by tribal people
- Support provided through EPA Indian General Assistance Program funds, administered through an EPA contract
- Outcome - build tribal environmental capacity and inform future tribal/EPA WQS decisions
- Ongoing EPA commitment to share information on Tribal work @ ID DEQ Negotiated Rulemaking Meetings

Purpose of surveys

- Tribal environmental capacity building
- Determine current & heritage fish consumption rates
- Understand causes of & reasons for suppression
& hopes for the future
- Potential use in development of Tribal water quality standards
- Potential use by Idaho DEQ

Tribal participation

- Current fish consumption rates (FCRs) determined for Nez Perce and Shoshone Bannock Tribes
- Historic FCRs evaluated for the Kootenai, Coeur d'Alene, Nez Perce, and Shoshone Bannock Tribes

Methodologies for Current FCRs

- 1) Food Frequency Questionnaire (FFQ): Individuals estimate their consumption over the course of a year
- 2) 24 Hour Recall/National Cancer Institute Method:
 - a) Individuals provide fish consumption over the past 24 hours on two independent occasions.
 - b) Statistical modeling approaches used to develop estimate of daily long term fish consumption.

Comparison of FFQ and NCI Methods

Method	Advantages	Disadvantages
FFQ	<ul style="list-style-type: none">• Statistical analysis straightforward, FCRs immediately usable for AWQC• Data requirements lower than for NCI• Can develop FCR for desired fish groups	<ul style="list-style-type: none">• Uncertainty greater when recalling consumption over the course of a year
NCI	<ul style="list-style-type: none">• Recall over 24 hours (“yesterday”) is more accurate than recall over longer periods• NCI FCR likely to be more accurate than FFQ	<ul style="list-style-type: none">• Complex modeling required• More individuals and interviews needed relative to FFQ• Potential failure if not enough double hits are obtained• Inability to characterize FCR of fish groups for which sufficient double hits are not available

Species groups for which FCRs were reported

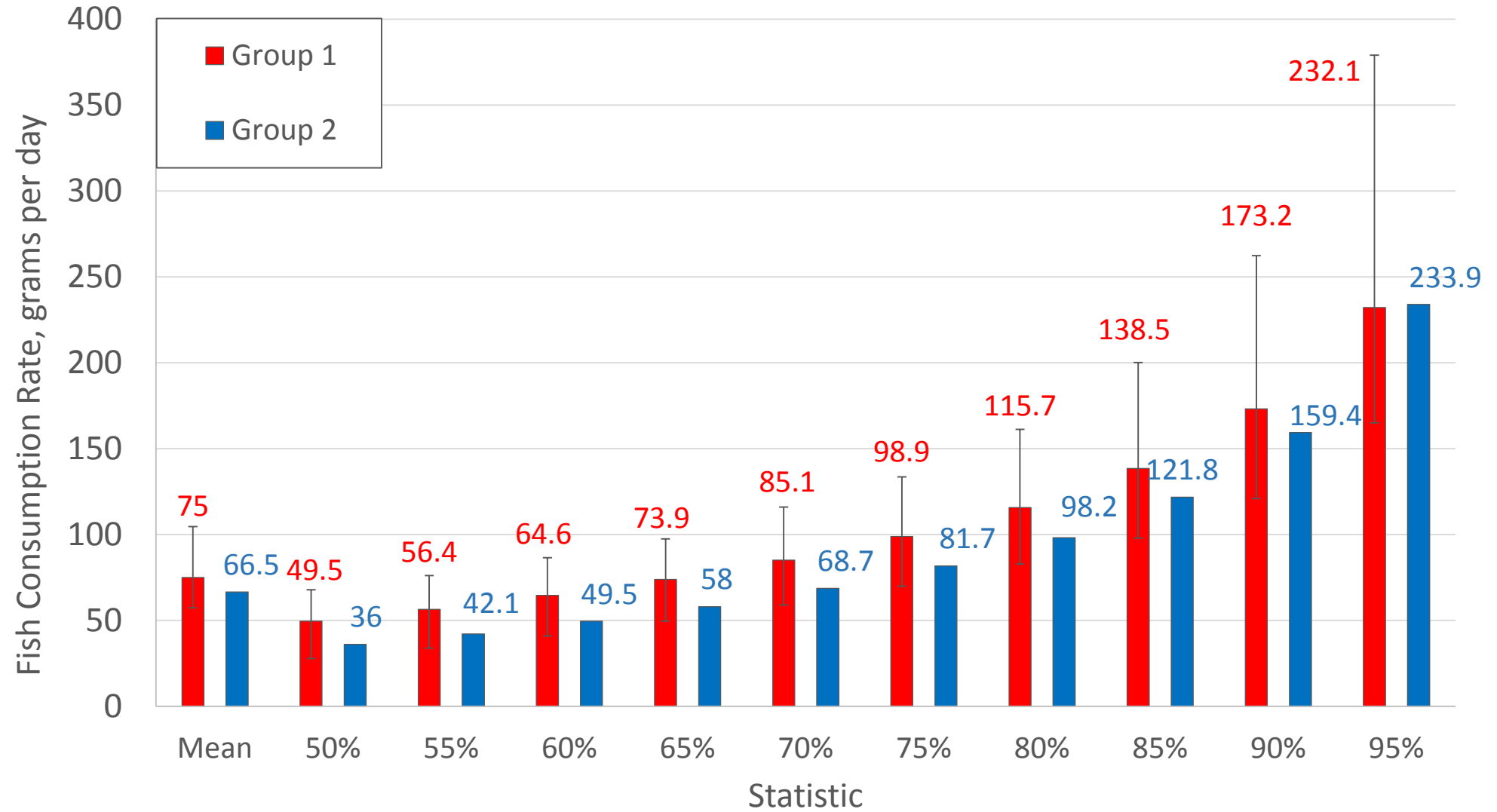
- Group 1: All finfish and shellfish
- Group 2: Near coastal, estuarine, freshwater and anadromous
- Group 3: Salmon and steelhead
- Group 4: Resident trout
- Group 5: Other freshwater finfish and shellfish
- Group 6: Marine finfish or shellfish
- Group 7: Unspecified finfish or shellfish

Note: Only group 1 and 2 FCRs were computed using the NCI method. All other rates based on FFQ.

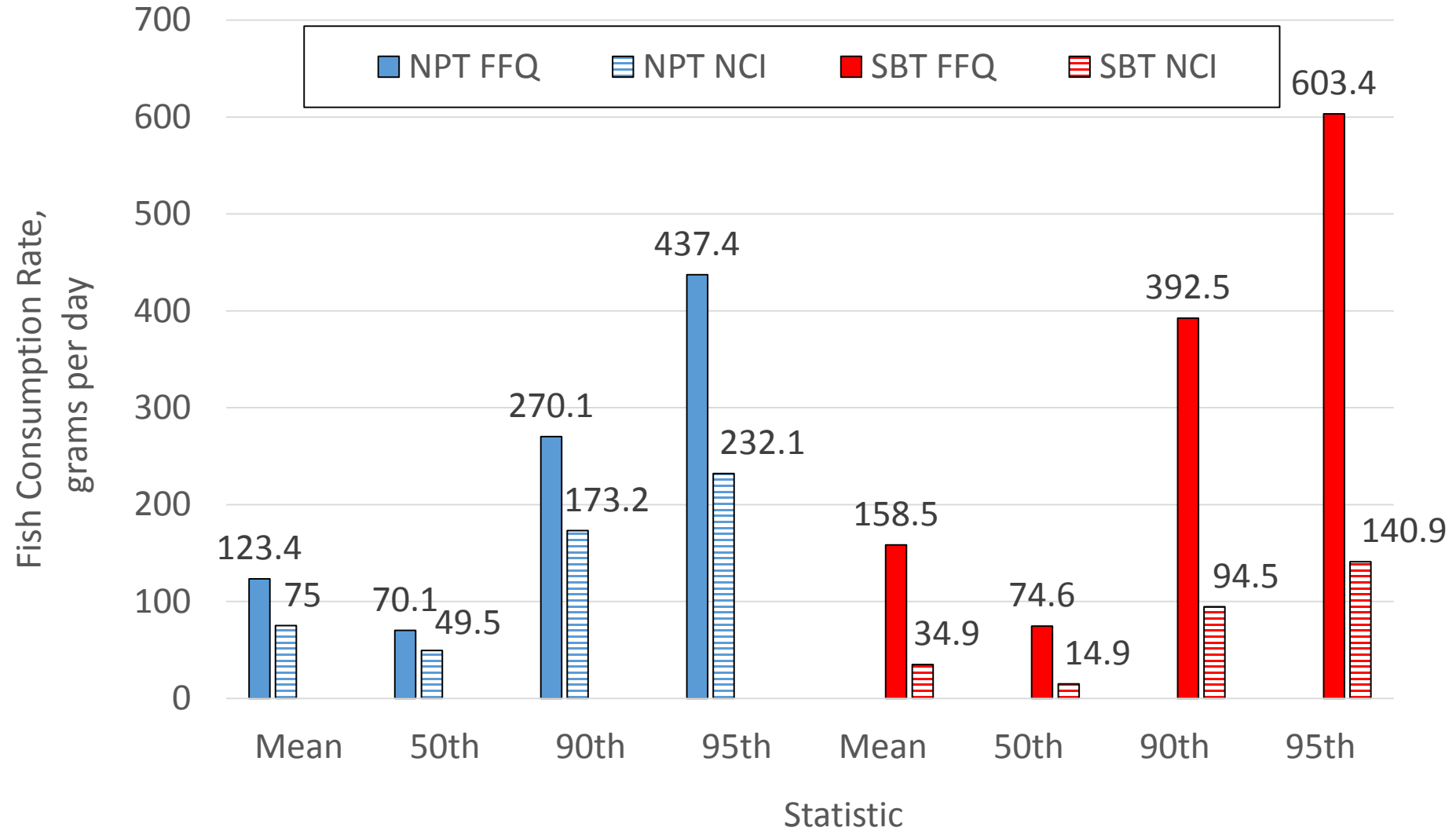
Uses of Species Groups

- Groups 1 and 2 approved by tribes for preliminary FFQ FCR report
- Group 2 proposed by tribes as being the appropriate species grouping to use to derive FCRs for development of HH AWQC
- The selection of Group 2 for this purpose utilizes accepted EPA policy options
- Groups 3 to 7 approved for informational purposes

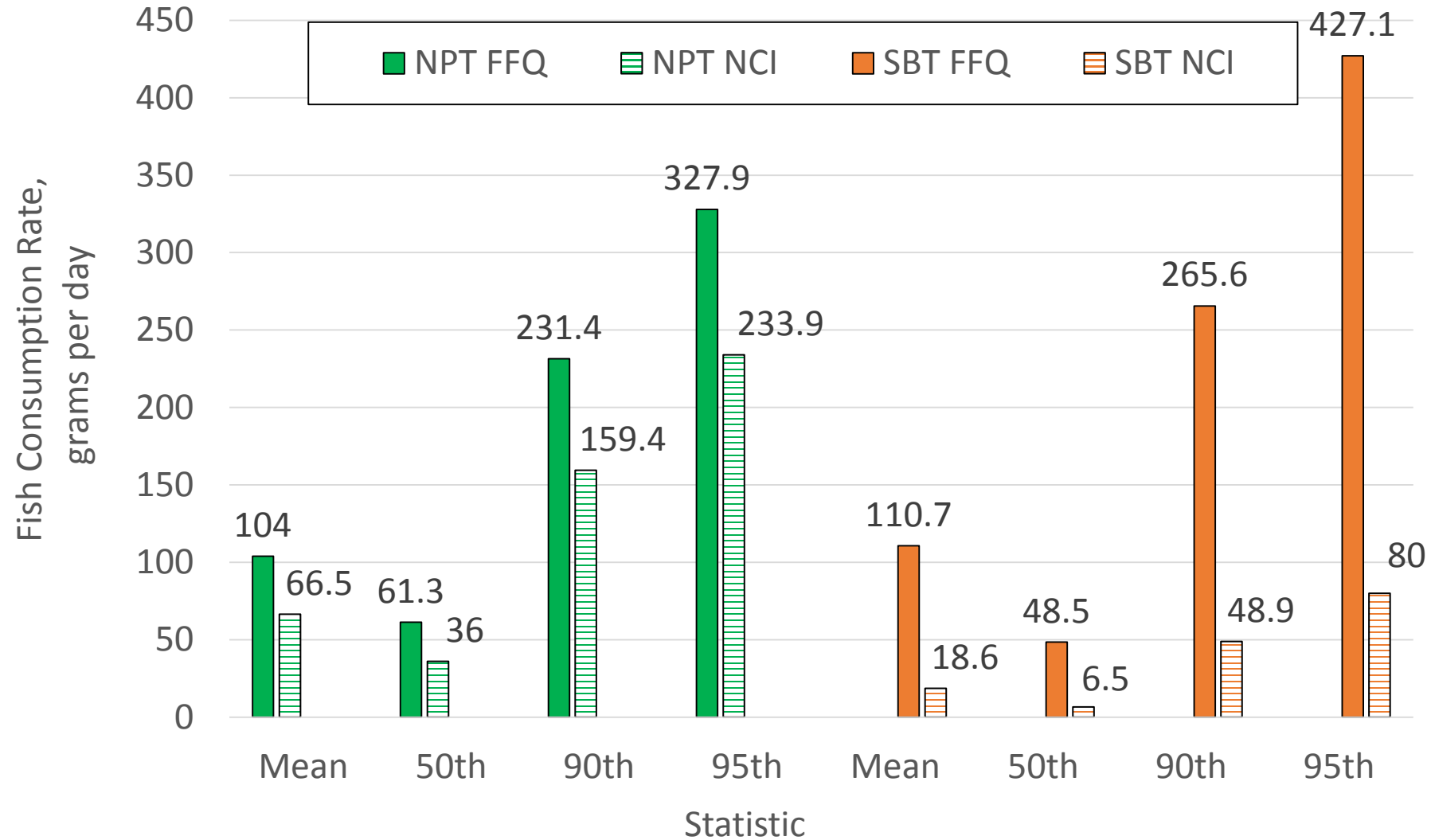
Fish Consumption Rates, NCI, Nez Perce Tribe



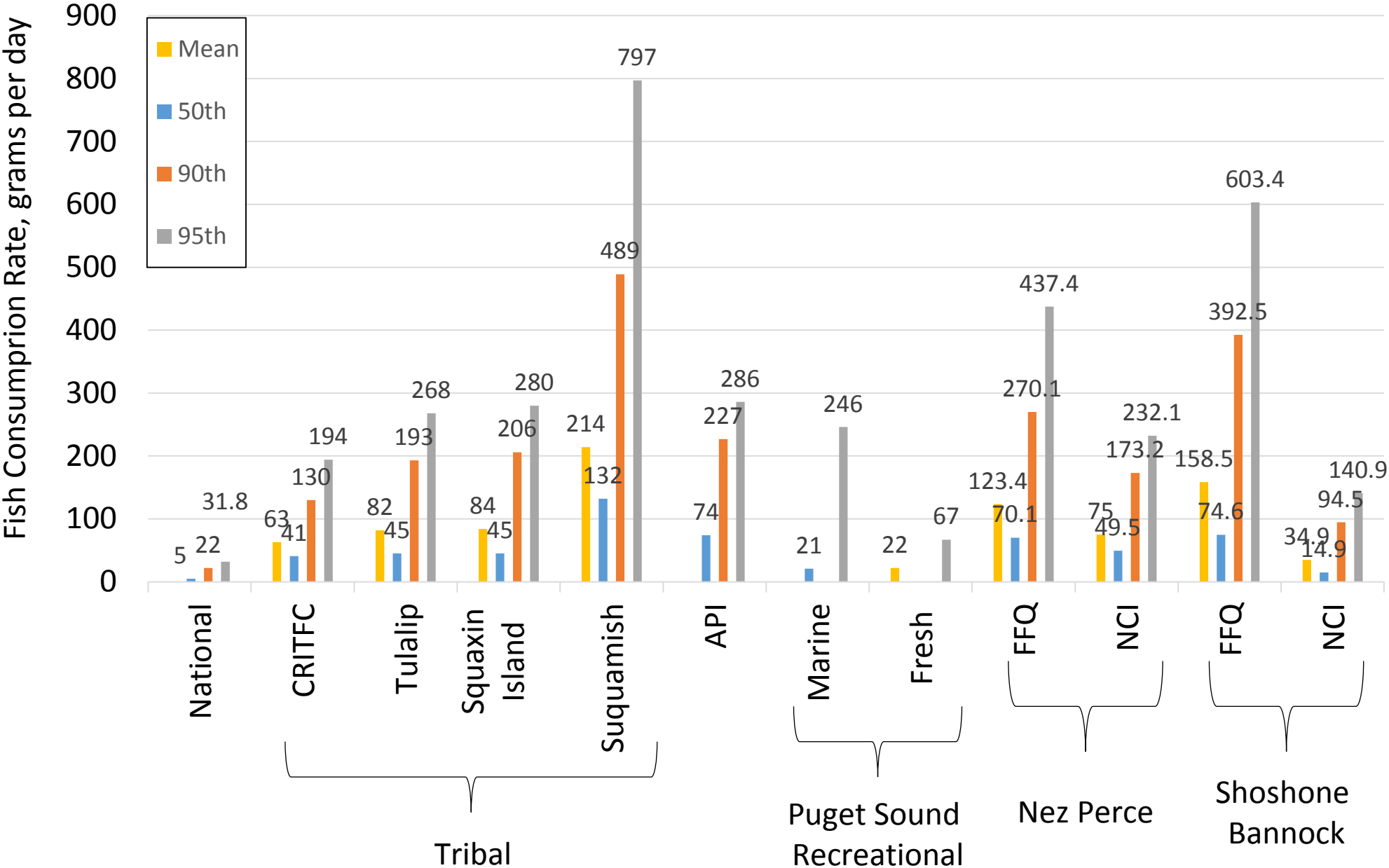
Comparison of FFQ and NCI Statistics, Group 1



Comparison of FFQ and NCI Statistics, Group 2



Comparison of FCRs, All Fish Regardless of Source



Additional Observations

- No impact of season on consumption observed
- No significant difference in FCRs recorded for tribal vs. non-tribal interviewers

Suppression

Reduction in fish consumption from historic rates due to a variety of causes.

- Fears of chemical contamination
- Reduced fish populations due to loss of habitat or chemical contamination
- Changes in social structure such that harvesting is reduced
- Loss of access to fishing locations
- Laws or regulations restricting fishing
- Inadequate fishing gear

Implications of Suppression

When environmental agencies employ a FCR that does not capture fully the consumption that is suppressed – under either scenario in which suppression effects occur – they set in motion a sort of downward spiral whereby the resulting environmental standards permit further and further contamination or depletion of the fish and so diminished health and safety of people consuming fish, shellfish, aquatic plants, and wildlife for subsistence, traditional, cultural, or religious purposes.

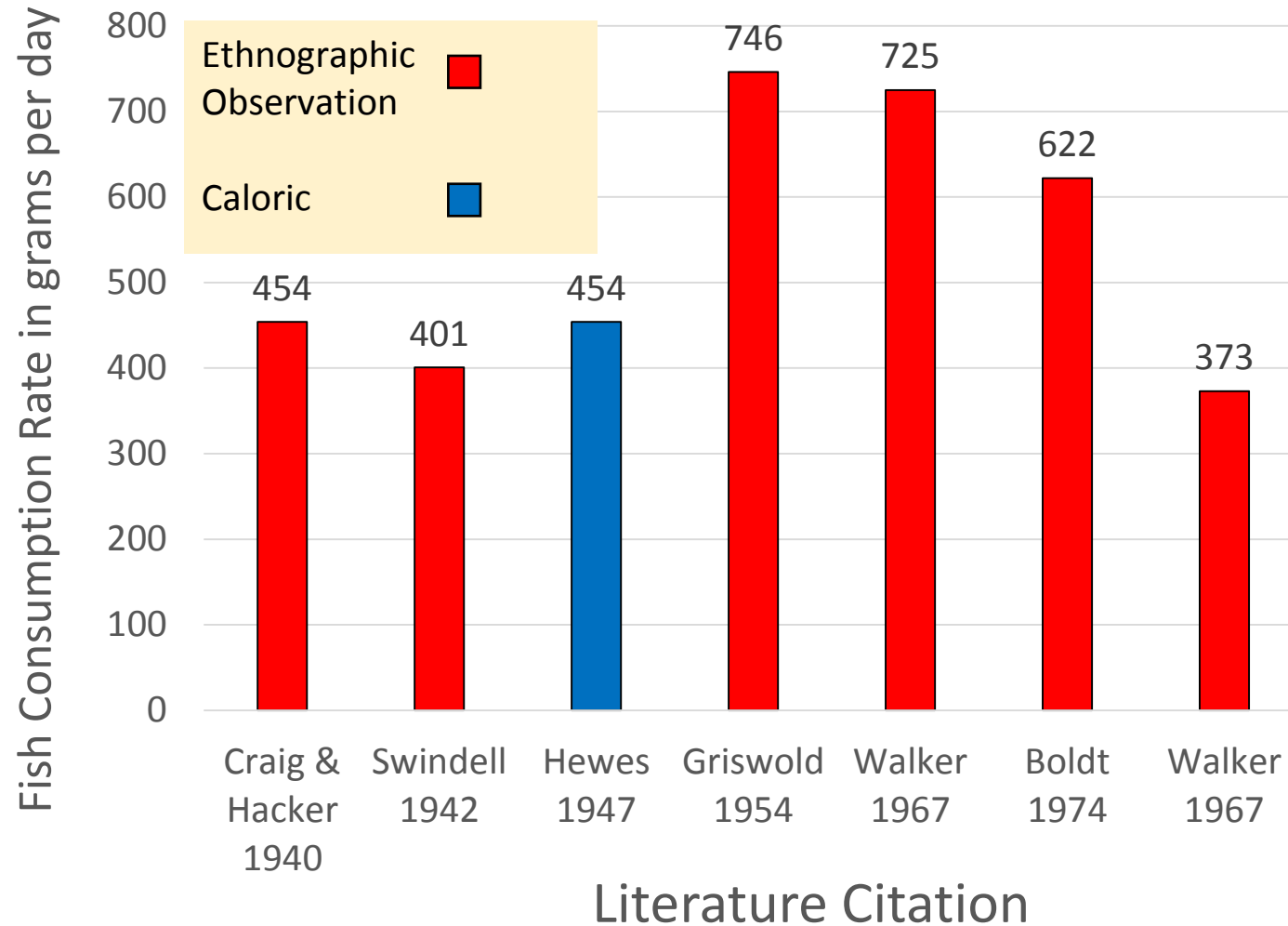
(NEJAC 2002)

http://www.epa.gov/environmentaljustice/resources/publications/nejac/fish-consump-report_1102.pdf

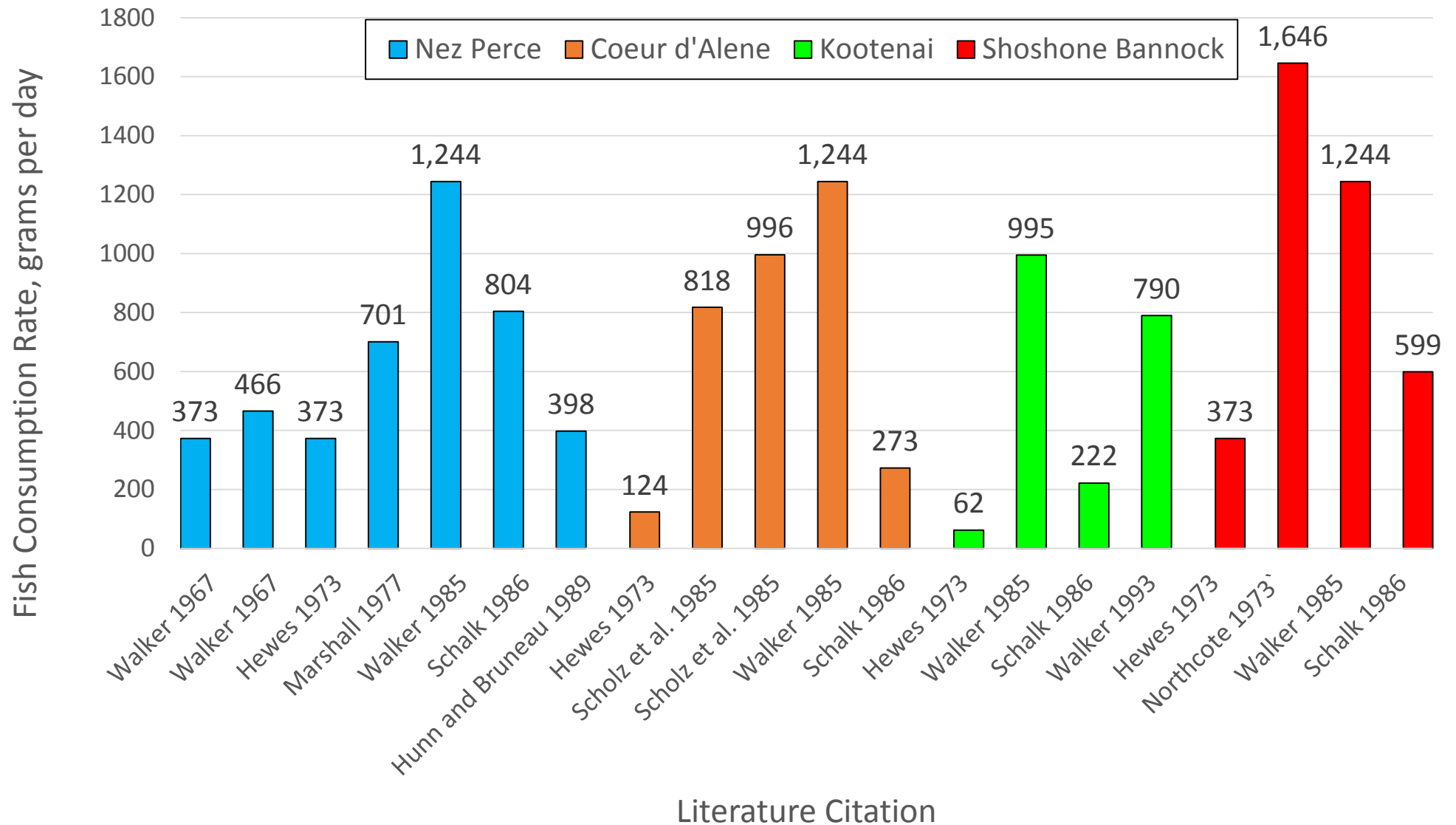
Heritage rates

- FCRs prior to environmental damage associated with arrival of settlers
- Methods
 - Direct observation of catch and population size estimates
$$\text{FCR} = \frac{\text{fish per day per site} \times \text{\# of fishing days per year} \times \text{\# of sites} \times \text{lb per fish} \times \text{grams per pound}}{365 \text{ days per year} \times \text{Native American population}}$$
 - Caloric basis:
$$\text{FCR} = \frac{\text{calories required for daily activity} \times \text{fraction of diet consisting of fish}}{\text{caloric content of fish}}$$
 - Ethnographic analysis
 - Wabanaki study (Harper and Ranco 2009), <http://www.epa.gov/region1/govt/tribes/pdfs/DITCA.pdf>
 - Spokane Tribe (Harper et al. 2001), <http://www.ncbi.nlm.nih.gov/pubmed/12088230>
- Heritage rates are estimates of “central tendency” or average consumption. Not possible to get upper percentiles or distributions.

Heritage Rates for Columbia River Tribes



Heritage Fish Consumption Rates for Idaho Tribes



Availability of tribal data

- Data are currently available from EPA via an expedited FOIA process
- Requestors will be sent a package including:
 - Data in Excel format
 - A data dictionary explaining data elements
 - Tribal heritage reports
- Contact Lon Kissinger or Mary Lou Soscia for further information

Nez Perce position on data use

The Nez Perce Tribe and the U.S. Environmental Protection Agency (U.S. EPA) developed and approved a fish consumption survey for the Tribe through EPA Contact EP-W09-011. The design for the fish consumption survey is set forth in a report, “design of a Survey on Fish Consumption by the Nez Perce Tribe”, prepared for the Nez Perce Tribe, U.S. EP:A, and SRA International, INC. This Survey Design Report is the foundation for all the information and data collected, evaluated or reported as part of the Tribal fish consumption survey.

The purpose of the fish consumption survey is to obtain data necessary for determining fish consumption rates for the Nez Perce Tribe. This information and data is useful for developing water quality standards that are protective of the current and future health of the Nez Perce Tribal members. This information and data also help the Tribe build capacity for measuring fish consumption rate (FCRs), informs tribal fisheries management, and documents the importance of fish in tribal culture and life ways.

The Tribe does not authorize the use of his information and data for any purpose other than the purpose set forth in the design report.

Schedule

- August 28th: Peer review comments returned to EPA
- Reports undergoing further review by the tribes and EPA during the peer review period.
- September 21st: Contractors will deliver another draft of the reports addressing peer review comments as well as any additional issues raised by the tribes and EPA.
- September 25th: Draft final version of the reports will be delivered to the tribes and EPA.
- September 30th: EPA delivers final reports to Idaho DEQ.

Questions?